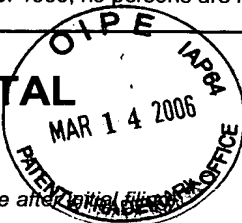


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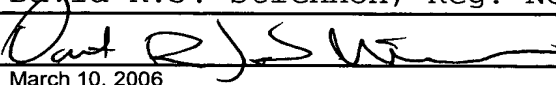


Application No.	10/070,024
Filing Date	February 26, 2002
First Named Inventor	Kari Holopainen
Group Art Unit	3725
Examiner Name	J. Nguyen
Attorney Docket Number	FORSAL-36

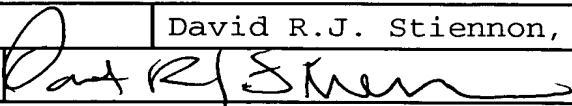
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Remarks The Commissioner is hereby authorized to charge any additional fees that may be required with respect to this communication, or credit any overpayment, to Deposit Account No. 50-2663		<ul style="list-style-type: none"> <li>• PTO SB/44</li> <li>• Request for Certificate of Correction</li> </ul>

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm or Individual name	David R.J. Stiennon, Reg. No. 33212
Signature	
Date	March 10, 2006

**CERTIFICATE OF MAILING**

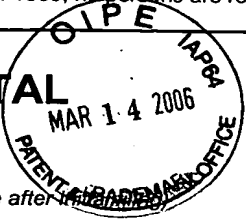
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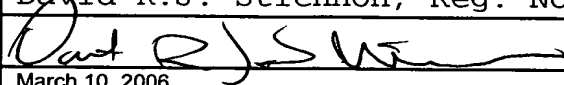
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<b>TRANSMITTAL FORM</b> (To be used for all correspondence after transmittal)				Application No. 10/070,024	
		Filing Date February 26, 2002		First Named Inventor Kari Holopainen	
		Group Art Unit 3725		Examiner Name J. Nguyen	
Total Number of Pages in This Submission		Attorney Docket Number FORSAL-36			

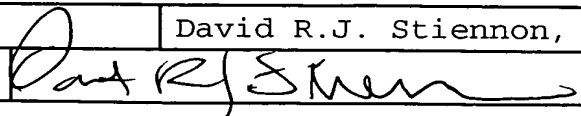
  

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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,997,106 <sup>Bi</sup>  
DATED : February 14, 2006  
INVENTOR(S): Kari Holopainen et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In column10, line 20 of the issued patent, "angle of over 45' with respect" should be —angle of over 45° with respect—

MAILING ADDRESS OF SENDER:

PATENT NO. 6,997,106

STIENNON & STIENNON  
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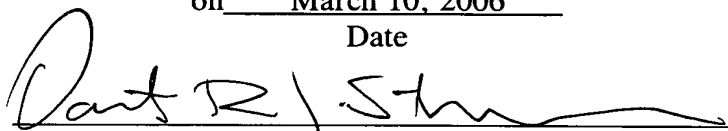
Applicant: Kari Holopainen et al. Date: March 10, 2006  
Date Filed: February 26, 2002 Docket No.: FORSAL-36  
App. No.: 10/070,024 Art Unit: 3725  
Patent No.: 6,997,106 B1 Issue Date: February 14, 2006  
For: Shoe Roll Examiner: J. Nguyen

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David R.J. Stienon, Reg. No. 33212  
Name of applicant, assignee or Registered Representative

**Request for Certificate of Correction  
With Expedited Processing**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Applicant requests that a Certificate of Correction be issued as shown on the  
PTO/SB/44 enclosed herewith.

This request for correction is incurred solely through the fault of the United States  
Patent and Trademark Office, as is clearly disclosed in the records of the Office. The  
accompanying documentation unequivocally supports this assertion of USPTO error, and

MAR 20 2006

Applicant: Kari Holopainen et al.  
Application No.: 10/070,024  
Art Unit: 3725

includes copies of the relevant pages of the record, so that this request may be processed without the file. The relevant sections of the record have been highlighted in yellow.

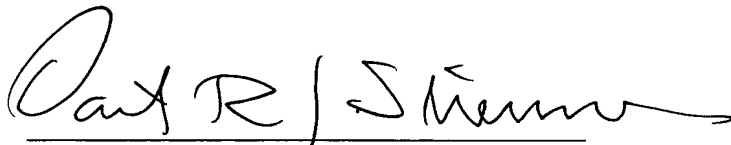
Expedited processing is requested under the provisions of the August 21, 2002, Official Notice in 1262 TMOG 96.

Applicant respectfully requests that the typographical error in the text of the published patent that were not in the original application be corrected by a Certificate of Correction under 37 CFR 1.322.

In column 10, line 20 of the issued patent, "angle of over 45' with respect" should be -- angle of over 45° with respect-- as written in the amendment dated August 2, 2005, on page 5, line 11.

Applicant believes that this Office mistake constitutes an error of consequence that merits the issuance of a Certificate of Correction as it is of such a nature that the intended meaning may not be obvious from the context.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David R.J. Stiennon", written over a horizontal line.

David R.J. Stiennon, Reg. No. 33212  
Attorney for Applicant  
Stiennon & Stiennon  
612 W. Main St., Suite 201  
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Relevant page from printed U.S. Patent No. 6,997,106

MAR 20 2006



US 6,997,106 B1

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No separate loading cylinders are needed in the calender because loading can be accomplished by means of the loading members located inside the shells of the Sym-rolls (soft-surface rolls 1, 4, 6, 10).

FIGS. 3-5 also show take-out rolls 3, 5, 7, 9 typical of the calender, by means of which the web W which is being calendered can be taken out of the nips and which have been placed on both sides of the roll stacks A,B.

On-line calendering of paper is advantageously accomplished by means of the calender described above, in which connection it can be placed in a papermaking line. The calender is short in the machine direction, with the result that it is easy to place in an existing line, for example, in connection with rebuilds. Moreover, a change of the mode of running from the mode of calendering shown in FIG. 4 to the mode of calendering shown in FIG. 5 and vice versa is easy to accomplish.

Above, the invention has been described only by way of example by means of one of its embodiments regarded as advantageous. This is, of course, not intended to limit the invention and, as is clear to a person skilled in the art, many different alternative solutions and modifications are feasible within the inventive idea and its scope of protection defined in the accompanying claims. The wide usability of the present invention in almost all kinds of calendering applications, with the exception of pure machine calendering, shall be particularly noted.

The shoe roll provided with a composite shell according to the invention enables the calender to be run and used with different nip combinations. Some of the nips can be kept open. For example, in the case shown in FIG. 2, the nips AN and PN2 can be left open, in which connection the web W is passed directly from the knip KN to reeling. In that connection, the calender shown in FIG. 2 can be arranged to comprise two nips by feeding pressure only for the shoe 43 in the roll 4 and leaving the shoe 42 without pressure. Thereby, a calender is provided which has two successive nips profiling the web W on the same side. When the shoes 12 and 43 above and beneath the nips YN and PN1 are simultaneously pressed or relieved, two successive nips can be provided which profile the web W in the same way, which enhances the outcome.

What is claimed is:

1. A calender having a plurality of calender rolls arranged one upon the other, and including a top calender roll and a bottom calender roll, and defining in operation at least one profiling nip for profiling a fibrous web that is being calendered, at least one of the calender rolls defining the profiling nip being a shoe roll comprising an outer shell and at least one row of internal shell-loading shoe means for profiling the shell, the nip and the fibrous web as well as for controlling contact in the nip, the improvement comprising:

the shoe roll is located between the top and bottom calender rolls;

the shoe roll outer shell is of continuous-fibre reinforced composite material, the fiber orientation being such that the composite material outer shell is more rigid in the circumferential direction than in the axial direction; and the at least one row of internal shell-loading shoe means of the shoe roll is arranged parallel to a nip defined against the shoe roll.

2. The calender of claim 1 wherein the plurality of calender rolls further comprises a first press roll below the upper roll, and a first intermediate roll below the first press roll, and a second press roll above the bottom calender roll, and a second intermediate roll above the second press roll,

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and wherein both the first intermediate roll and the second intermediate roll are shoe rolls.

3. The calender of claim 1 wherein there are a plurality of rows of internal shell-loading shoe means within the shoe roll, the rows being uniformly spaced with respect to one another in the circumferential direction of the composite material outer shell.

4. The calender of claim 1 wherein the top calender roll is a shoe roll.

5. The calender of claim 1 wherein the bottom calender roll is a shoe roll.

6. The calender of claim 1, wherein the continuous-fibre reinforced composite material includes plastic or epoxy reinforced by glass fibres or carbon fibres, and that in order to provide a shell which is more rigid in the circumferential direction in relation to the axial direction of the shoe roll, orientation of the fibres of the composite material has been accomplished such that a major proportion of the fibres of the composite material of the shell of the shoe roll are directed at an angle of over 45° with respect to the axis of the shoe roll.

7. The calender of claim 6, wherein the angle is in the range of 70°-90°.

8. The calender of claim 1 wherein the shoe roll is a hydraulically zone-controlled roll, the composite shell of which is supported from a non-rotating central shaft of the shoe roll by means of hydrostatic loading arrangements which transfer the nip force directed at the composite shell rotating around the central shaft so as to be carried by the central shaft.

9. The calender of claim 8 wherein the hydrostatic loading arrangements comprise rows of loading shoes.

10. The calender of claim 1 wherein the calender has at least one intermediate roll positioned between the calender top roll and the calender bottom roll, and wherein at least one of the top roll, the at least one intermediate roll, and the bottom roll is a shoe roll.

11. The calender of claim 1 wherein in calender operation, the shoe roll is separable from a nip forming contact with a press roll or another shoe roll.

12. The calender of claim 1 wherein the plurality of calender rolls comprises two stacks of three rolls, one of the two stacks defining an upper stack the top roll being the uppermost roll of the upper stack, and the other of the two stacks defining a lower stack, the lower roll being the lowermost roll of the lower stack, the upper stack being placed upon the lower stack such that between the two stacks there remains a space which is defined by a lower roll of the upper stack and by an upper roll of the lower stack, the shoe roll being one of the upper stack lower roll and the lower stack upper roll, wherein the bottom roll of the upper stack and the top roll of the lower stack can be separated from contact with rolls of their own roll stack into nip contact with each other.

13. The calender of claim 12 wherein the bottom roll of the upper stack and the top roll of the lower stack are shoe rolls having roll shells, and at least the bottom roll of the upper roll stack and the top roll of the lower roll stack are fixedly mounted on a calender frame such that their shells can be displaced in the direction of the roll stack with respect to roll supports of the rolls.

14. The calender of claim 13 wherein at least the bottom roll of the upper roll stack and the top roll of the lower roll stack are provided with loading members located inside their roll shells.

15. A calender for treatment of a fibrous web passing therethrough, the calender comprising:

MAR 20 2006



Relevant page from amendment in U.S. Application No. 10/070,024,  
filed on August 2, 2005

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Applicant: Kari Holopainen et al.  
Application No.: 10/070,024  
Art Unit: 3725



17. (previously presented) The calender of claim 14 wherein the top calender roll is a shoe roll.

18. (currently amended) The calender of claim 14 wherein [[the]] the bottom calender roll is a shoe roll.

19. (cancelled)

20. (previously presented) The calender of claim 14, wherein the continuous-fibre reinforced composite material includes plastic or epoxy reinforced by glass fibres or carbon fibres, and that in order to provide a shell which is more rigid in the circumferential direction in relation to the axial direction of the shoe roll, orientation of the fibres of the composite material has been accomplished such that a major proportion of the fibres of the composite material of the shell of the shoe roll are directed at an angle of over 45° with respect to the axis of the shoe roll.

21. (previously presented) The calender of claim 20, wherein the angle is in the range of 70°–90°.

22. (previously presented) The calender of claim 14 wherein the shoe roll is a hydraulically zone-controlled roll, the composite shell of which is supported from a non-rotating central shaft of the shoe roll by means of hydrostatic loading arrangements which transfer the nip force directed at the composite shell rotating around the central shaft so as to be carried by the central shaft.

23. (previously presented) The calender of claim 22 wherein the hydrostatic loading arrangements comprise rows of loading shoes.